REMARKS

A. Request for Reconsideration

Applicants have carefully considered the matters raised by the Examiner in the outstanding Office Action but remains of the position that patentable subject matter is present. Applicants respectfully request reconsideration of the Examiner's position based on the Claim Amendments and the following remarks.

B. Claim Status and Amendments

Claims 1-19, 21, 23-24 and 26-35 are pending. Claims 1-16 are withdrawn and claims 17-19, 21, 23, 24 and 26-35 are under prosecution. Claims 20, 22, and 25 have been cancelled.

Claim 17 has been amended by specifying that the means for transporting the filler-containing mixture comprises a filter cascade composed of a one-dimensionally filtering element and a two-dimensionally filtering element. Claim 17 recites that both filter elements comprising means for mechanical cleaning of the filter element. Claim 17 recites that the two-dimensionally-filtering element is downstream to the one-dimensionally-filtering element and that the one-dimensionally-filtering element has finer openings than the two-dimensional filtering element. Support to this amendment can be seen from Page 6 of the application and the cancelled claims 20, 22, and 25.

There is no new matter added in the amendments.

C. The Invention

The present invention is directed to an apparatus for the continuous production of polyurethane foam using carbon dioxide as the blowing agent. The apparatus is designed to facilitate a process in which a filler-containing reaction mixture is passed through a sieve to generate bubble nuclei without clogging the sieve.

In particular, the invention features a **filter cascade** comprising:

a one-dimensionally filtering element,

a two-dimensionally filtering element, and

means for mechanical cleaning on each of the filtering element,

the two-dimensionally-filtering element is arranged downstream to the one-dimensionally-filtering element and

the one-dimensionally-filtering element has finer openings than the two-dimensional filtering element.

One of the unique aspects of the present invention is placing the finer filter upstream of the coarse filter. This means that once the material passes through the fine filter, it should also pass through the downstream course filter.

None of the cited references, standing alone or in combination, discloses a filter cascade having two filtering elements arranged in such a special order.

D. The Board Decision

The Board affirmed the Examiner's rejection to Claims 17-35 under 35 U.S.C. §103(a) as being unpatentable over Eiben et al (U.S. Patent 5,789,457) in view of

Sulzbach et al (U.S. Patent 5,547,276), Davis et al (U.S. Patent 5,527,462) and Sulzbach '*190* (WO *02104190*). The claims have been amended herein and are deemed to define over the cited reference for the following reasons.

1. The cited references do not teach the claimed filter cascade.

Eiben et al discloses a method and device for producing foams using carbon dioxide dissolved under pressure in which the reaction mixture is passed through at least one fine-meshed net. Eiben, however, does **not** teach or suggest an apparatus for comminution of agglomerates in the filler with a means for transporting filler-containing mixture comprising a **filter cascade** composed of a one-dimensionally filtering element and a two-dimensionally filtering element, wherein the two-dimensionally-filtering element is arranged downstream to the one-dimensionally-filtering element and wherein the one-dimensionally-filtering element has finer openings than the two-dimensional filtering element.

Sulzbach et al discloses a method and apparatus for continuously dispersing fine particle-sized solids in a liquid. Sulzbach et al does not teach or suggest a **filter cascade** having a one-dimensionally filtering element and a two-dimensionally filtering element either. Sulzback does not remedy the deficiency of Eibben.

Davis et al was cited to teach a self-cleaning filter, however, Davis et al does not teach or suggest the specific **filter cascade** having a one-dimensionally filtering element and a two-dimensionally filtering element. Further, the present invention requires the two-dimensionally-filtering element is arranged downstream to the one-

dimensionally-filtering element and the one-dimensionally-filtering element has finer openings than the two-dimensional filtering element. Davis et al provides no suggestion or guidance with respect to this arrangement. Therefore, Davis does not remedy the deficiency of Eibben and Sulzback.

Sulzbach '190 discloses a discharging mechanism with an agglomerate reducer. Sulzbach '190 does not mention the specific **filter cascade** having a one-dimensionally filtering element placed upstream to a two-dimensionally filtering element. Hence, Sulzbach '190 does not remedy the deficiency with regarding to the filter cascade in Eibben, Sulzback and Davis.

It is therefore respectfully submitted that the cited references, standing alone or in combination, does not disclose the filter cascade system in the invention.

2. The Filter Cascade system is not a obvious modification from prior art

The Examiner asserted that the filter design in the invention is a modification within the skill of the ordinary practitioner.

First, it should be noted that the invention recited in claim 17 had not been present to the examiner and thus, the art cited by the Examiner has not been applied to the invention as claimed.

As described in detail on page 1, line 16, to page 2, line 31, of the application, the invention is designed to address the difficulties and requirements in processing fillers in combination with liquid CO_2 in a continuous polyurethane foam producing

system. As discussed at page 2, lines 15-19 of the present application, the inclusion of a filler in the foam-forming mixture presents clogging problems for the filtering system.

In order to address the problem, a dual filtering system is provided for filtering out relative flat shaped particles and oversized grains. The system features a one-dimensionally filtering element with finer openings upstream of a coarser two-dimensionally filtering element. This design provides a serial filtering cascade, where different shaped particles can be filtered separately, so that the blockage of the orifice by interlocked particles is reduced.

There is no such a dual filtering system in any of the cited references. The filter cascade with a finer one-dimensionally filtering element upstream of a coarser two-dimensionally filtering element is not obvious, since it is anti-intuitive to put a finer filter upstream of a coarser filter. Therefore, it is not evident from the cited reference to achieve the filter cascade in the invention.

It is respectfully submitted that the amended claim 17 and its dependent claims are patentable over Eibben, Sulzbacks and Davis.

E. Conclusion

It is respectfully submitted that application is in condition for allowance, and reconsideration and allowance is hereby requested. Should any fees or extensions of time be necessary in order to maintain this Application in pending condition,

appropriate requests are hereby made and authorization is given to debit account # 02-2275.

Respectfully submitted,

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